

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 32 is rejected under 35 USC 103(a) as being unpatentable over Scher et al. (U.S. Patent 4,092,198), in view of Schmooch (U.S. Patent 5,344,692). Scher shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show using one or more rollers that are pressed towards the surface structured wear layer before the complete curing stage. Schmooch shows that it is known to use one or more rollers that are pressed towards the surface structured wear layer before the complete curing stage (Column 12, lines 4-34). Although Schmooch does not specifically use glazing rollers, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use any configuration of Schmooch's rollers during Scher's molding process in order to obtain a desired final finish of the rolled article (i.e. provide a smooth "glazing" roller instead of one with raised designs).

Claims 40, 43, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher and Schmooch, further in view of MacQueen et al. (U.S. Patent 6,399,670).

Regarding Claim 40, Scher shows the process as claimed as discussed in the rejection of Claims 1 and 32 above, but he does not show using a specific counter stay roller. MacQueen shows a process including a method wherein each structured roller is provided with a counter stay roller between which the surface element is passed (Column 23, lines 34-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use MacQueen's counter stay roller in Scher's and Schmooch's molding process in order to provide accurate control of pressure during the embossing process.

Regarding Claim 43, Scher shows the process as claimed as discussed in the rejection of Claim 1, 32, and 40 above, but he does not give a specific surface element thickness. MacQueen shows a process including a method wherein the surface element has a thickness T and that the distance between each glazing roller is a specific value (Column 23, lines 47-50; Table 10). Although he does not specifically disclose that the distance between each glazing roller and the corresponding counter stay is set in the range of T minus 0.7mm-1.2mm, he suggests that it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to vary the gap between the two rolls in order to obtain a desired thickness of the final article (Column 25, lines 15-21, 31-32). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use

MacQueen's thickness guidelines in Scher's and Schmooch's molding process in order to obtain an article that satisfies end-use specifications.

Regarding Claim 52, Scher shows the process as claimed as discussed in the rejection of Claim 1, 32, and 43 above, but he does not give a specific surface element thickness. MacQueen shows a process including a method wherein the surface element has a thickness T and that the distance between each structured roller is a specific value (Column 23, lines 47-50; Table 10). Although he does not specifically disclose that the distance between each structured roller and the corresponding counter stay is set in the range of T minus 0.7mm-0.9mm, he suggests that it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to vary the gap between the two rolls in order to obtain a desired thickness of the final article (Column 25, lines 15-21, 31-32). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use MacQueen's thickness guidelines in Scher's and Schmooch's molding process in order to obtain an article that satisfies end-use specifications.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scher and Schmooch, further in view of Correll et al. (U.S. Patent 6,238,750). Scher shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not specifically show applying a wear layer in several steps with intermediate partial curing between said steps by applying a UV or electron beam. Correll et al., hereafter "Correll," show that it is known to carry out a method including applying a wear layer in several steps with intermediate partial curing between said steps by applying a UV or electron beam (Column 6, lines 66-67; Column 7, lines 1-2; Column 8, lines 20-22; Column 8, lines 60-63). Correll and Scher are combinable because they are concerned with a similar technical field, namely, methods of molding multilayer articles. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Correll's intermediate curing by applying a UV or electron beam during Scher's molding process in order to achieve quick and accurate curing to the desired level each time.

Claims 33-34, and 57-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher and Schmooch, in view of Petry (U.S. Patent 3,196,030).

Regarding Claim 33, Scher shows the process as claimed as discussed in the rejection of Claims 1 and 32 above, but he does not show operating the rolls at a specific temperature. Petry shows that it is known to carry out a process for making a decorative article wherein the structured rollers are heated to a surface temperature (ST) above 40°C (Column 9, lines 46-48).

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Petry and Scher are combinable because they are concerned with a similar technical field, namely, methods of making a decorative article. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Scher's process at Petry's temperature in order to avoid damaging the molding material due to the rollers being too hot, or prolonging cycle time due to the rollers being too cold.

Regarding Claim 34, Scher shows the process as claimed as discussed in the rejection of Claims 1 and 32 above, but he does not show operating the rolls at a specific temperature. Petry shows that it is known to carry out a process for making a decorative article wherein the structured rollers are heated to a surface temperature (ST) above 30°C (Column 9, lines 46-48). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Scher's process at Petry's temperature in order to avoid damaging the molding material due to the rollers being too hot, or prolonging cycle time due to the rollers being too cold.

Regarding Claim 57, Scher shows the process as claimed as discussed in the rejection of Claims 1, 32, and 33 above, but he does not show operating the rolls at a specific temperature. Petry shows that it is known to carry out a process for making a decorative article wherein the structured rollers are heated to a surface temperature (ST) is in the range of 50-150°C (Column 9, lines 46-48). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Scher's process at Petry's temperature in order to avoid damaging the molding material due to the rollers being too hot, or prolonging cycle time due to the rollers being too cold.

Regarding Claim 58, Scher shows the process as claimed as discussed in the rejection of Claims 1, 32, and 34 above, but he does not show operating the rolls at a specific temperature. Petry shows that it is known to carry out a process for making a decorative article wherein the rollers are heated to a surface temperature (ST) is in the range of 35-100°C (Column 9, lines 46-48). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Scher's process at Petry's temperature in order to avoid damaging the molding material due to the rollers being too hot, or prolonging cycle time due to the rollers being too cold.

Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher and Schmoock, in view of Eby et al. (U.S. Patent 5,961,903).

Regarding Claim 36, Scher shows the process as claimed as discussed in the rejection of Claims 1 and 32 above, but he does not show the application of an additional top coat applied to the article. Eby shows that it is known to carry out a method of making an article

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with a surface structure, wherein a thin top coat is applied on top of the structured wear layer after the glazing stage (Column 8, lines 28-31). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Eby's top coat during Scher's method in order to provide extra protection for the top wear layer.

Regarding Claim 37, Scher shows the process as claimed as discussed in the rejection of Claims 1 and 32 above, but he does not show the application of an additional top coat applied to the article. Eby shows that it is known to carry out a method of making an article with a surface structure, wherein a thin top coat is applied on top of the structured wear layer before the glazing stage and that the top coat is partially cured before glazing (Column 7, lines 65-67; Column 8, lines 1-4). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Eby's top coat during Scher's method in order to provide extra protection for the top wear layer.

Claims 42 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scher, Schmoock, and MacQueen, in view of Schmid et al. (U.S. Patent 5,804,116).

Regarding Claim 42, Scher shows the process as claimed as discussed in the rejection of Claims 1, 39, and 41 above, but he does not teach a specific pressure which is applied to the article. Schmid et al., hereafter "Schmid," show that it is known to carry out a method of making an article with a surface structure, wherein the pressure between each structured roller and its corresponding counters stay is 50-200 Bar (Column 9, lines 27-29). Schmid and Scher are combinable because they are concerned with a similar technical field, namely, molding processes which yield articles having a designed surface structure. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Schmid's pressure from Scher's rollers in order to produce the desired amount of compression of the article.

Regarding Claim 53, Scher shows the process as claimed as discussed in the rejection of Claims 1, 39, 41, and 42 above, but he does not teach a specific pressure which is applied to the article. Schmid shows that it is known to carry out a method of making an article with a surface structure, wherein the pressure is 65-100 Bar (Column 9, lines 27-29). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Schmid's pressure from Scher's rollers in order to produce the desired amount of compression of the article.

Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scher, Schmoock, and MacQueen, in view of Greten et al. (U.S. Patent 5,498,309). Scher shows the

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process as claimed as discussed in the rejection of Claims 1, 32, 40, and 43 above, but he does not show a specific pressure which is applied to the article. Greten et al., hereafter "Greten," show that it is known to carry out a method of making an article with a surface structure, wherein the pressure is 0.1-10 Bar (Column 2, lines 7-8). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Greten's pressure from Scher's rollers in order to produce the desired amount of compression of the article.

Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scher, Schmooch, and MacQueen, as applied to claim 43 above, and further in view of Schmid. Scher shows the process as claimed as discussed in the rejection of Claims 1 and 44 above, but he does not teach a specific pressure which is applied to the article. Schmid shows that it is known to carry out a method of making an article with a surface structure, wherein the pressure is 65-100 Bar (Column 9, lines 27-29). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Schmid's pressure from Scher's rollers in order to produce the desired amount of compression of the article.

Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Scher, in view of Schmooch, further in view of MacQueen, Petry, and James. Scher shows that it is known to carry out a method for the manufacture of a decorative surface element, which element comprises a base layer, a décor layer of a lacquer, and a wear layer (Abstract), the process comprising the steps positioning one or more structured rollers or molds on top of the lacquer, the one or more rollers or molds provided with embossing rollers (Column 5, lines 3-13; Column 6, lines 50-64), pressing said one or more rollers or molds into said lacquer, whereby the lacquer will be provided with a surface structure, thereby enhancing the decorative effect of the décor (Column 6, lines 50-64; Column 7, lines 36-68), and thereafter curing the wear layer (Column 10, lines 6-18).

Scher does not show using a UV curable resin in his decorative surface element. Schmooch shows that it is known to carry out a method for making a decorative surface element using a layer of UV curing lacquer (Column 4, lines 11-13). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Schmooch's UV curing lacquer as a layer in Scher's decorative element in order to enable the article to be cured by methods other than convection.

Scher does not show using a specific lacquer. MacQueen shows a process including a method wherein the lacquer consists of an acrylic lacquer (Column 5, lines 29-31; It is noted

that “acrylate” is a polymer of acrylic molecules). MacQueen and Scher are combinable because they are concerned with a similar technical field, namely, methods of molding laminates. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use MacQueen’s acrylic lacquer in Scher’s and Schmooch’s molding process in order to produce an article having properties of an acrylic lacquer.

Scher does not specify using a wear layer with particles. MacQueen shows a process including a method wherein the wear layer includes hard particles with an average particle size in the range of 50nm-150um (Column 8, lines 41-48). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use MacQueen’s particled wear layer in Scher’s and Schmooch’s molding process in order to produce an article having a wear layer with desired properties.

Scher does not require the use of particle board. MacQueen shows a process including a method wherein the base layer consists of a particle board (Column 9, lines 22-25). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use MacQueen’s particle board in Scher’s and Schmooch’s molding process to provide a sturdy core layer for the end product.

Scher does not give a specific surface element thickness. MacQueen shows a process including a method wherein the surface element has a thickness T and that the distance between each structured roller is a specific value (Column 23, lines 47-50; Table 10). Although he does not specifically disclose that the distance between each structured roller and the corresponding counter stay is set in the range of T minus 0.5mm-1.2mm, he suggests that it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to vary the gap between the two rolls in order to obtain a desired thickness of the final article (Column 25, lines 15-21, 31-32). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use MacQueen’s thickness guidelines in Scher’s and Schmooch’s molding process in order to obtain an article that satisfies end-use specifications.

Scher does not show operating the rolls at a specific temperature. Petry shows that it is known to carry out a process for making a decorative article wherein the structured surface of the mold is heated to a surface temperature (ST) above 40°C (Column 9, lines 46-48). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to operate Scher’s process at Petry’s temperature in order to avoid damaging the molding material due to the rollers being too hot, or prolonging cycle time due to the rollers being too cold.

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Scher does not specify the identity of the hard particles in the wear layer. James shows that it is known to carry out a method of making articles with specific surface structures, wherein (Claim 47) hard particles comprise silicon carbide (Column 3, lines 2-4), and (Claim 48) a part of the hard particles comprise silicon carbide, while another amount of the hard particles consist of diamond (Column 3, lines 2-4). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use James' hard particles in Scher's molding process in order to yield an article useful in situations calling for those specific hard particles.

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